

Map 4C

Optimize Perimeter & Area

1.4 p. 36-45

What is the maximum rectangular area for a given perimeter?

Length	Width	Perimeter	Area
		60	
		60	
		60	
		60	
		60	
		60	
		60	
		60	
		60	

$$P = l + l + w + w$$

$$A = L \times W$$

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What is the maximum rectangular area for a given perimeter? Four Sided Figure

Length	Width	Perimeter	Area
1	29	60	29m ²
5	25	60	125m ²
8	22	60	176m ²
10	20	60	200m ²
12	18	60	216m ²
15	15	60	225m ²
16	14	60	224m ²

$$P = l + l + w + w$$

$$A = L \times W$$

Max Area when all sides are the same (4)

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What is the maximum rectangular area for a given perimeter? 3 sided figure

Length	Width	Perimeter	Area
50		60	
		60	
		60	
		60	
		60	
		60	
		60	
		60	

$$P = 2w + l$$

$$A = L \times W$$

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What is the maximum rectangular area for a given perimeter? 3 sided figure

Length	Width	Perimeter	Area
50	5	60	250
40	10	60	400
30	15	60	450
20	20	60	400
10	25	60	250
		60	
		60	

$$P = 2w + l$$

$$A = L \times W$$

Max Area - when the length is double the width

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What is the maximum rectangular area for a given perimeter? 3 sided figure

Length	Width	Perimeter	Area
		60	
		60	
		60	
		60	
		60	
		60	
		60	

$$P = l + l + w + w$$

$$A = L \times W$$

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Key Concepts

- when enclosing all four sides of a given rectangle, the maximum area is formed in a square
- when enclosing just three sides of a rectangular area, the max area is obtained when the shape has a length twice the value of the shape's width

Hmk. p43-45 q 5-9, 11 & 12

Feb 7-7:27 AM